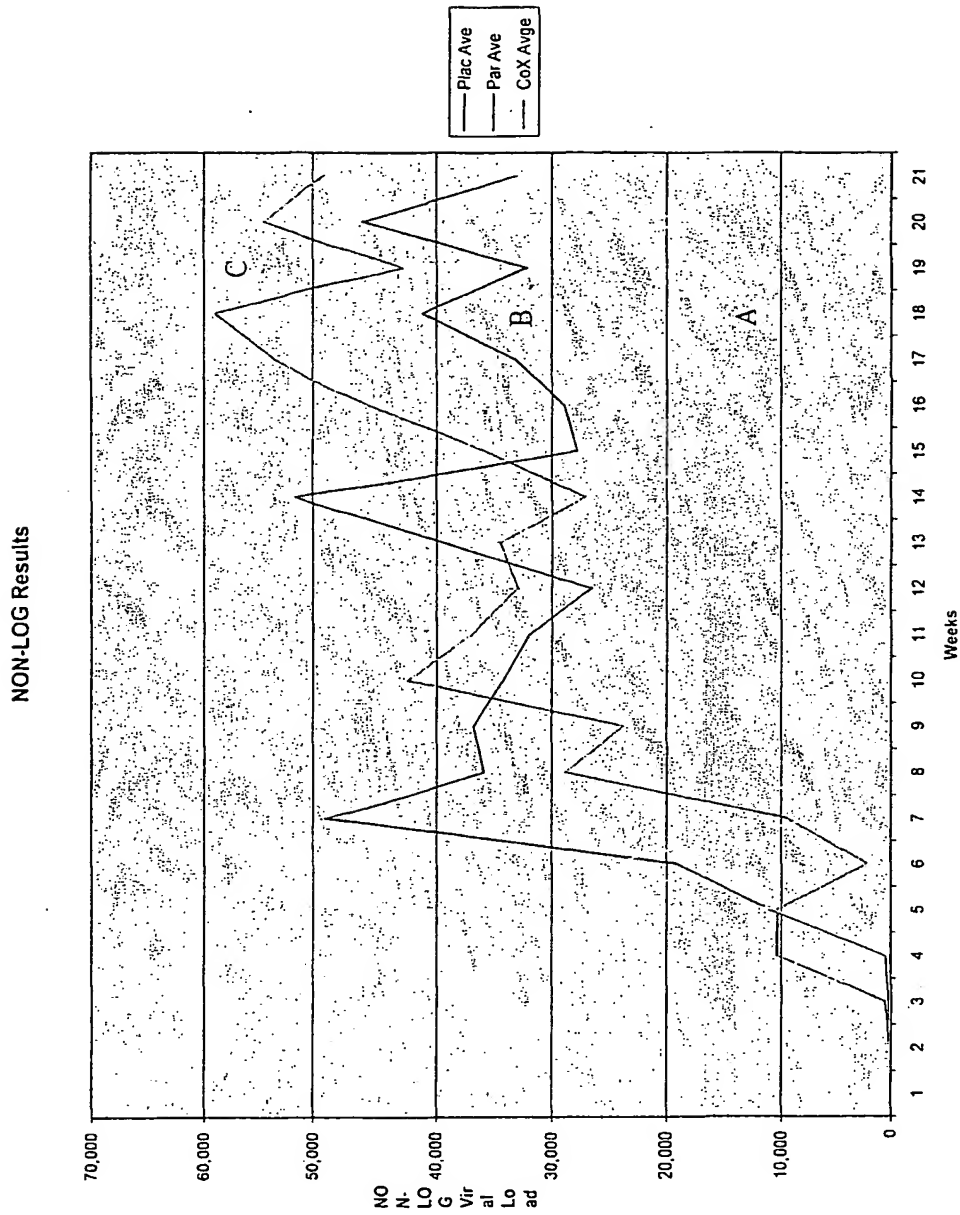


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BEST AVAILABLE COPY

Figure 1

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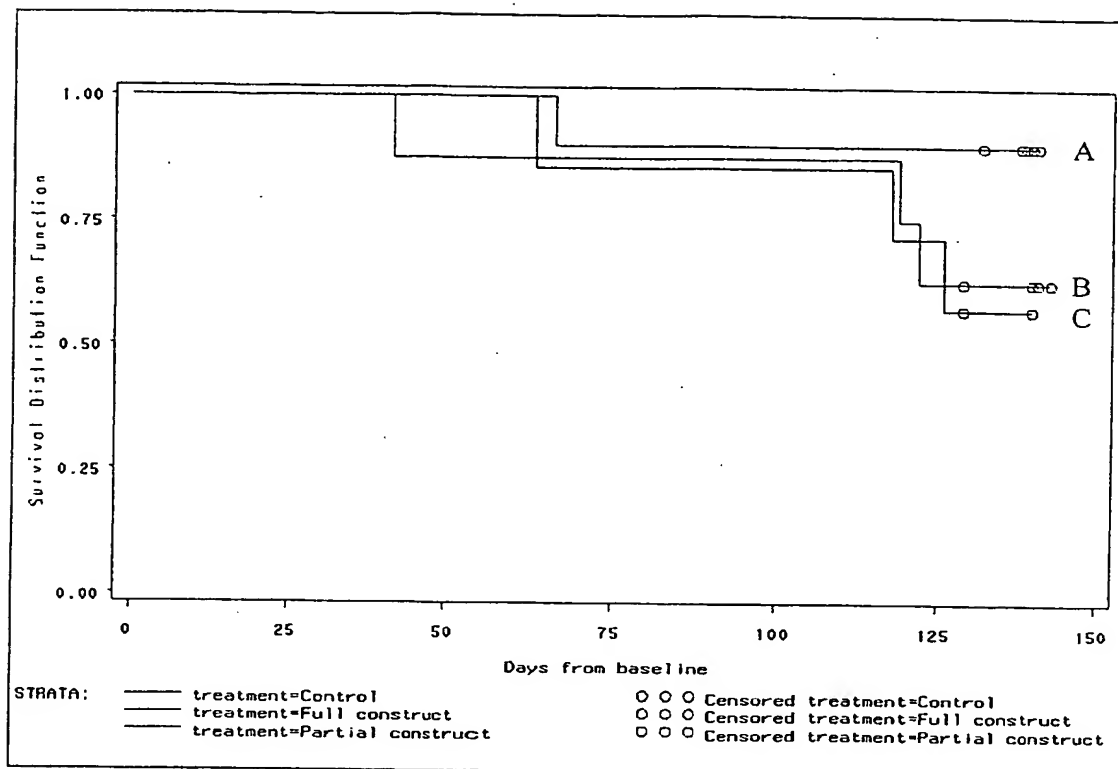


FIGURE 2

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DNA sequence of the insertion site of VIR201 containing HIV gag/pol, human interferon and reporter cassette
(Ecogpt & beta-galactosidase) inserts

1 AGACAGTTATCCCAATACGGTATACAAGGAGACAATTTATCAATTTTGTAGATTCTTCC
TCTGTCAATAGGGTTATGCCATATGTTCTCTGTAAATAGTTAAAAACATCTAAGAAGG
Fowlpox virus 5' flanking region of insertion site -->

61 AATGAAGTTGCTATAAACAGGCACCTCTATTATAGGAGCTAGACAGTTGAATCCTATATGC
TTACTTCAACGATATTTGTCCGTGAGATAAATATCCTCGATCTGTCAACTTAGGATATACG

121 GTAGTATCTTTTATCCCTTTGATCCAGAACATAAAGTTTTTTTCGTTATATATGTTGGT
CATCATAGAAAATAGGAACTAGGCTCTTGATTTCAAAAAAGCAATATATACAACCA

181 AGATATAAAGATAAGTATTGTGGAATTTCTACGTAGCTGATAGAGAAAGATATGTACAAA
TCTATATTTCTATTTCATAACACCTTAAAGGATGCATCGACTATCTCTTCTATACATGTTT

241 GTTATCAACAGGATATACCCGTACGTTAGTTGTTTTTACCTCGTATCAGATGGTATAATA
CAATAGTTGTCCTATATGGGCATGCAATCAACAAAAATGGAGCATAGTCTACCATATAT

301 AATTTTCATACTACTCCCGTAGCTAATCACACTAGAAAAATATAAACCCCTTCCAGTTAAT
TTAAAAGTATGATGAGGGCATCGATTAGTGTGATCTTTATAATTTGGGGAAGGTCAATTA

361 TATTGTAATACTTTATGTGAAATAGTATATGATTTTGAATATTTAAAGTTTGAACAAAGGT
ATAACATTATGAAATACACTTTATCATATATACTAAAACTTATAAATTTCAAACCTTGTTCCA

421 GTTATGTCTATTCCGGTGTTTCATGCCCTTTTGTACCAAAAAACAGTTTGTATCTATTATCAAT
CAATACAGATAAGGCCACAAGTACGGAAAAACATGGTTTTTGTCAAACATAGATAATAGTTA

Figure 3 continued

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481 TTACCAGATGATATTCTCATAAACATGTACAGCGTCCAGTAACATAGAAATACATAACACAT
AATGGTCTACTATAAGAGTATTGTACATGTGCGAGGTCATTTGTATCTTATGTATTGTGTA
541 ATAGATAATAAAAGCTAAAAAGAACTACTTATAATAATAAAAGATAAAATTTCTAAAGGGT
TATCTATTATTTTTCGATTTTCTTATGAATATTATTATTTTCTATTAAAGATTTCCTCCA
601 ACTATCATGCAAGGTACTTTTAAAAAAGTAAATATCATAAAGACACAAGAGTATACATAT
TGATAGTACGTTCCCATGAAAATTTTTTCATTATAGTATTCTGTGTTCTTCATATGTATA
661 ACTATAACGTATTCTTTTGTATTGCCCTAAACTAGAAGATACTAAGTCATCGCTGCCA
TGATATTGCATAAGAAGAAAACCTAACGGGATTTGATCTTCTATGATTCAGTAGCGACGGT
721 AGTACGTGCAATAAAGCCATATTAGATGGCGGTAGATATGTTACAAAAAATTTTAATGAT
TCATGCACGTTATTTCGGTATAATCTACCCGCATCTATACAATGTTTTTGAAAAATTACTA
781 ACAATATAAATGGAAATAGCTAGAGAAAACGCTAATAACGATAGGCCCTTACTATATTAGTA
TGTTATATTTACCTTTATCGATCTCTTTGCGATTATTGCTATCCGGAATGATATAATCAT
841 GTGTTATTGATAATAAAGTGGATTCTCGCTAGTGTAAAGATTAAACCGGGTGTATTATAGT
CACAAATAACTATTATTGACCTAAGAGCGATCACGATTCTAATTATGGCCACAAATATCA
901 TCAGTATCGAGGTCATCATTTACAGCAGGAAGAATACTTCGTTTTATGGAAATATTTTCT
AGTCATAGCTCCAGTAGTAAATGTGTCCTCTTCTTATGAAGCAAAATACCTTTATAAAGA
961 ACTATTATGTTTATTCCTGGAATAATTATATTGTACGCTGCTTATATAAGAAAAATTA
TGATAATACAAATAAGGACCTTATTAATATAACATGCGACGAATATCTTTTTTAATTT
1021 ATGAAAAAATAATTAGAATCTGAAAATGTCTTCTGGGAAGCATCCATGTTATTACAGGCCCT
TACTTTTTTAACTTAGACTTTTACAGAAGACCTTCGTAGGTACAATAATGTCCGGGA

Figure 3 continued

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> M S S G S I H V I T G P
Fowlpox virus tk protein coding sequence→

1081 ATGTTTCCGGTAAACATCGGAGCTAGTAAAGAATAAAAAGATTATGCTATCTAAC
 TACAAAAGGCCATTTGTAGCCTCGATCATCTTCTTATTTTCTAAATACGATAGATTG
 > M F S G K T S E L V R R I K R F M L S N

1141 TTAAATGTATTATTAAACATTGTGGAGATAATAGATATAATGAGGATGATATAAAC
 AAATTTACATAATAATAATTGTAAACACCTCTATTATCTATATTACTCCTACTATATTG
 > F K C I I I K H C G D N R Y N E D I N

1201 AAAGTATATACTCATGATCTATTGTTTATGGAGGCTACGGCATCTTCTAATCTATCTGTA
 TTTCATATATGAGTACTAGATAACAATAACCTCCGATGCCGTAGAGATTAGATAGACAT
 > K V Y T H D L L F M E A T A S S N L S V

1261 TTAGTACCTACGCTATTAAATGATGGAGTTCAGGTAATAGGTATAGACGAGGCTCAATTC
 AATCATGGATGCGATAATTTACTACCTCAAGTCCATTATCCATATCTGCTCCGAGTTAAG
 > L V P T L L N D G V Q V I G I D E A Q F

1321 TTTCTAGACATAGTAGAATTTAGTGAATCCATGGCTAATTTAGGTAAACAGTTATTGTG
 AAAGATCTGTATCATCTTAAATCACTTAGGTACCGATTAAATCCATTTTGTCAATAACAC
 > F L D I V E F S E S M A N L G K T V I V

1381 GCCGCGCTTAACGGTGATTTTAAACGCCAATTATTCGGTAACGTATATAAGTTATTATCA
 CCGCGCGAATTGCCACTAAAATTTGCGCTTAATAAGCCATTGCATATATTCAATAATAGT
 > A A L N G D F K R E L F G N V Y K L L S

1441 TTAGCTGAAACAGTGTCCAGTTTGACAGCTATTTGCGTGAATGCTATTGCGACGCTTCG
 AATCGACTTTGTACACAGGTCAAACACTGTCGATAAACGCCACTTTACGATAACGCTGCCAAGC

Figure 3 continued

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> L A E T V S S L T A I C V K C Y C D A S
1501 TTTCTAAACGAGTTACAGAAAATAAAGAAATGATATAGGTGGTAAAGATAAATAC
    AAAAGATTGTCTCAATGTCTTTTATTCTTTCATTACCTATATCCACCATTTCTATTATG
> F S K R V T E N K E V M D I G G K D K Y
1561 ATAGCCGTGTGTAGGAAATGTTTTTTTAGTAATTAAGgggagatctccccatgccccaaa
    TATCGGCACACATCCTTTACAAAAAATCATTAATTccccctctagaggggtaccggggtt
> I A V C R K C F F S N .
1621 gcggggtttgaacaggggttcgctcaggttgctgtgcatggatgcagcctccagaat
    cgccccaaacttgccccaaagcgagtcgagtcgagtcacgtacgtcgaggtcctta
1681 acttactgaaactattgtaacccgcctgaagttaaaaaaacaacgcccggcagtgcca
    tgaatgaccttgataaacattggcgcgacttcaatttttctgttgcgggccgtcacggt
1741 ggcgttgaaaaagaTTAGCGACCGGAGATTGGCGGGACGAATACGACGCCCATATCCCACG
    ccgcaacttttctAATCGCTGGCCTCTAACCGCCCTGCTTATGCTGCGGGTATAGGGTGC
    < . R G S I P P V F V G M D W P
    End of Ecogpt protein coding sequence
1801 GCTGTTCAATCCAGGTATCTTGGGGATATCAACAACATAGTCATCAACCAGCGACGAC
    CGACAAGTTAGGTCCATAGAACGCCCTATAGTTGTTGTATCAGTAGTTGGTCGCCCTGCTG
    < Q E I W T D Q P I D V V Y D D V L P R G
1861 CAGCCGGTTTTCGAAGATGGTGACAAAGTGCCTTTTGGATACATTTACGAATCGCAA
    GTCGGCCAAAACGCTTCTACCACTGTTTTCACGGCGAAAACCTATGTAAAGTGCTTAGCGTT
    < A P K A F I T V F F H A K P Y M E R I A V

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Figure 3 continued

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1921 CCGCAGTACCAACGGTATCCACCAAGGTCAATCAATAACGATGAAGCCTTCGCCATCGCCTT
      GCGTCATGGTGGCCATAGGTGGTCCAGTAGTTATTGCTACTTCGGAAGCGGTAGCGGAA
      < A T G G T D V L D D I V I F G E G D G E

1981 CTGCGCGTTTCAGCACITTAAGCTCGCGCTGGTTGTCGTATCGTAGCTGGAATAACAAA
      GACGCGCAAGTCGTGAAATTCGAGCGCGACCAACAGCACTAGCATCGACCTTTATGTTT
      < A R K L V K L E R Q N D H D Y S S I C V

2041 CCGTATCGACATGACGAATACCCAGTTCAAGCGCCAGTAACGCACCCGGTACCAGACCGC
      GCCATAGCTGTACTGCTTATGGTCAAGTGCGCGGTCAATTGCGTGGGCCATGGTCTGGCG
      < T D V H R I G L E R A L L A G P V L G G

2101 CACGGCTTACGGCAATAATGCCCTTCCATTGTTCAGAAGGCATCAGTCGGCTTGGAGTT
      GTGCCGAATGCCGTTATTACGGAAGGTAAACAAGTCTTCCGTAGTCAGCCCGAACGCTCAA
      < R S V A I I G K W Q E S P M L R S A L K

2161 TACGTGCATGGATCTGCAACATGTCCCAGGTGACGATGTATTTTCGCTCATgtgaagtg
      ATGCACGTACCTAGACGTTGTACAGGGTCCACTGCTACATAAAAAGCGAGTAcacttcac
      < R A H I Q L M D W T V I Y K E S M
      ←Start of Ecogpt protein coding sequence

2221 tcccagcctgtttatctacggccttaaaaaagtggttcgaggggaaaaataggtgcgcgagat
      aggtcggacaaaatagatgccgaattttcacaaagctcccccttttatccaaacgcgtcta

2281 tatagagatccgtcactgttctttatgatctacttccttaCCGTGCAATAAATTAGAATA
      atatctctaggcagtgacaagaaataactagatgaaggaatGGCACGTTATTTAATCTTAT

2341 TATTTTCTACTTTTACGAGAAATTAAATTATTGTATTTATTATTATGGTGAAAAACTTA
      ATAAAAGATGAAAAATGCTCTTTAATTAAATAACATAAATAATAATACCCACTTTTGAAT

```

Figure 3 continued

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← *Vaccinia virus p7.5 promoter (marked in upper case)*

2401 CTATAAAAGCGGGTGGGTTTGAattagtgatcagtttatgtatatcgcaactaccggc
GATATTTTCGCCCCACCCAAACCTtaatacactagtaacatacatatagcgttgatggccg

2461 atatggctattcgacatcgagaacattaccacatgataagagattgtatcagtttcgta
tataccgataagctgtagctcttgtaatgggtgtactattctctaacatagtc aaagcat

2521 gtcttgagtattggtattactatatagtatatgtcgggaattcagatccatgcagatccc
cagaactcataaccataatgatatacatatatacagcccttaagtctaggtacgtctagg

2581 ccctgccccggttattattATTTTGACACCAGACCAACTGGTAATGGTAGCGACCGGCGC
gggacgggccaataatATAAAACTGTGGTCTGGTTGACCAATTACCATCGCTGGCCGCG
< • K Q C W V L Q Y H Y R G A S

End of beta-Galactosidase protein coding sequence

2641 TCAGCTGGAATCCGCCGATACTGACGGGCTCCAGGAGTCGTGCCACCAATCCCCATAT
AGTCGACCTTAAGCGGCTATGACTGCCCGAGGTCCTCAGCAGCGGTGGTTAGGGGTATA
< L Q F E A S V S P S W S D D G G I G M H

2701 GGAAACCGTCGATATTCAGCCATGTGCCTTCTCCGCGTCAGCAGATGGCGATGGCTGG
CCTTTGGCAGCTATAAGTCGGTACACGGGAAGAGCGCACGTCGTCTACCGCTACCGACC
< F G D I N L W T G E E A H L L H R H S T

2761 TTTCCATCAGTTGCTGTGACTGTAGCGGCTGATGTTGAAGTGAAGTCGCCGCCCACT
AAAGGTAGTCAACGACAACTGACATCGCCGACTACAACTTGACCTTCAGCGCGCGGTGA
< E M L Q Q Q S Y R S I N F Q F D G R W Q

Figure 3 continued

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2821 GGTGTGGGCCATAATTCAATTCGGCGGTCCCGCAGCGCAGACCGTTTTCGCTCGGGAAGA
CCACACCCCGGTATTAAGTTAAGCGCGCAGGGCGTCGGCTCTGGCAAAAGCGAGCCCTTCT
< H P G Y N L E R T G C R L G N E S P F V

2881 CGTACGGGGTATACATGTCTGACAATGGCAGATCCAGGGGTCAAAACAGGCGGCAGTAA
GCATGCCCCATATGTACAGACTGTTACCGTCTAGGTCGCCAGTTTGTCCGCCGTCATT
< Y P T Y M D S L P L D W R D F C A A T L

2941 GGCGGTCGGGATAGTTTTCTTGGGGCCCTAATCCGAGCCAGTTTACCCGCTCTGCTACCT
CCGCCAGCCCTATCAAAAGAACGCCGGGATTAGGCTCGGTCAAATGGCGAGACGATGGA
< R D P Y N E Q P G L G L W N V R E A V Q

3001 GCGCCAGCTGGCAGTTCAGGCCAAATCCGCGCGGATCGGGTGATCGCTCGCCACTTCAA
CGCGGTCGACCGTCAAGTCGGTTAGGCGCGGCTACGCCACATAGCGAGCGGTGAAGTT
< A L Q C N L G I R A P H P T D S A V E V

3061 CATCAACGGTAATCGCCATTGACCCTACCCTACCATCAATCCGGTAGGTTTTCGGCTGATAA
GTAGTTGCCATTAGCGGTAACTGGTGATGTAGTAGGCCATCCAAAGGCCGACTATT
< D V T I A M Q G S G D I R Y T K R S I F

3121 ATAAGGTTTCCCCTGATGCTGCCACGGTGAGCGGTGTAATCAGCACCGCATCAGCAA
TATTCAAAAGGGGACTACGACGGTGCGCACTCGCCAGCATTAGTCGTGGCGTAGTCGTT
< L T K G Q H Q W A H A T T I L V A D A L

3181 GTGTATCTGCCGTGCACTGCAACAACGGCTGCTCGGCCCTGGTAATGGCCCCGCCCTTCC
CACATAGCGGCACGTGACGTTGTTGCGACGAAGCCGACCATACCGGGCGCGGAAGG
< T D A T C C Q L L A A E A Q Y H G A A K W

3241 AGCGTTCGACCCAGGCGTTAGGGTCAATGCGGGTCGGTCTCACTTACGCCAATGTCGTTAT

Figure 3 continued

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TCGCAAGCTGGGTCCGCAATCCAGTTACGCCAGCGAAGTGAATCGGGTTACAGCAATA
< R E V W A N P D I R T A E S V G I D N D

3301 CCAGCGGTGCACGGGTGAAGTATCGCGCAGCGGCGTCAGCAGTTGTTTTATCGCCAA
GGTCGCCACGTGCCCACTTGACTAGCGCGTCGCCCGCAGTCGTCAACAAAAATAGCGGT
< L P A R T F Q D R L P T L L Q K K D G I

3361 TCCACATCTGTGAAGAAAGCCCTGACTGGCGGTTAAATTGCCAACGCTTATTACCCAGCT
AGGTGTAGACACTTCTTTTCGACTGACCGCCAATTTAACGGTTGCGAATAATGGGTCGA
< W M Q S L F G S Q R N F Q W R K N G L E

3421 CGATGCAAAAATCCATTTCGCTGGTGGTCAGATCGGGATGGCGTGGGACGCGCGGGGA
GCTACGTTTTTAGGTAAGCGACACCACTAGTCTACGCCCTACCGCACCCCTGCGCGGCCCT
< I C F D M E S T T L H P I A H S A A P L

3481 GCGTCACACTGAGGTTTTCCGCCAGACGCCACTGTGCCAGCGCTGATGTCGCCGCTT
CGCAGTGTGACTCCAAAAGCGGCTCTGCGGTGACGACGGTCCGCGACTACACGGGCGGAA
< T V S L N E A L R W Q Q W A S I H G A E

3541 CTGACCATGCGGTGCGTTGCGTTGCACTACGCGTACTGTGAGCCAGAGTTGCCCGGCGC
GACTGGTACGCCAGCGCAAGCCAACTGATGCGCATGACACTCGGTCTCAACGGGCGCG
< S W A T A N P Q V V R V T L W L Q G A S

3601 TCTCCGGCTGCGGTAGTTCAGGCAGTTCAATCACTGTTTACCTTGTGGAGCGACATCCA
AGAGCCGACGCCCATCAAGTCCGTCAGTTAGTTGACAAATGGAACACCTCGCTGTAGGT
< E P Q P L E P L E I L Q K G Q P A V D L

3661 GAGGCACTTCAACCGCTTGCCAGCGGCTTACCATCCAGCGCCACCATCCAGTGCAGGAGCT
CTCCGTGAAGTGGCGAACGGTCGCCGAATGGTAGTCCGGTGGTAGGTACGTCCTCGA

Figure 3 continued

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< P V E G S A L P K G D L A V M W H L L E
3721 CGTTATCGCTATGACGGAACAGGTATTGCTGGTCACTTCGATGGTTGCCCGGATAAAC
GCAATAGCGATACTGCCTTGTCATAAGCGACCACTGAAGCTACCAACGGCCCTATTG
< N D S H R F L Y E S T V E I T Q G S L R
3781 GGAACGGAAAACTGCTGCTGTTTGTTCCTCCGTCAGCGCTGGATCGGCGTGCGGT
CCTTGACCTTTTGGACGACGACCAACAAACGAAGGAGTCGCGACCTACGCCGACGCCA
< F Q F F Q Q Q H K A E T L A P H P T R D
3841 CGGCAAGACCAAGACCGTTTCATACAGAACTGGCGATCGTTCGGCGTATCGCCAAAATCAC
GCCGTTTCTGGTCTGCAAGTATGTCTTGACCGCTAGCAAGCCGCAVAGCGGTTTGTAGTG
< A F V L G N M C F Q R D N P T D G F D G
3901 CGCCGTAAGCCGACACGGGTGCGGTTTTCATCATATTTAATCAGCGACTGATCCACCC
GCGGCATTGCGCTGGTGCCCAACGGCAAAAGTAGTATAAATTAGTCGCTGACTAGGTGGG
< G Y A S W P N G N E D Y K I L S Q D V W
3961 AGTCCAGACGAAGCCGCCCTGTAAACGGGGATACTGACGAAACGCCCTGCCAGTATTAG
TCAGGGTCTGCTTCGGCGGGACATTTGCCCCCTATGACTGCTTTGCGGACGGTCATAAATC
< D W V F G G Q L R P Y Q R F A Q W Y K A
4021 CGAAACCGCCAAGACTGTTACCCATCGCGTGGCGGTATTTCGCAAGGATCAGCGGGCGCG
GCTTTGGCGGTTCTGACAAATGGTAGCGCACCCGCAAGCGTTTCCTAGTCGCCCGCGC
< F G G L S N G M A H A Y E C L I L P R T
4081 TCTCTCAGGTAGCGAAAGCCATTTTGTATGGACCATTTTCGGACAGCCGGGAAGGGCT
AGAGAGGTCCATCGCTTTCGGTAAAAAACTACCTGGTAAAGCCGTGTCGGCCCTTCCCGA
< E G P L S L W K K I S W K P V A P F P Q

Figure 3 continued

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4141 GGTCTTCATCCACGCGCGGTACATCGGGCAATAATATCGGTGGCCGTGGTGTCTGGCTC
    CCAGAGTAGGTGCGCGCGCATGTAGCCCGTTTATTATAGCCACCGCACACAGCCGAG
    < D E D V R A Y M P C I I D T A T T D A G
4201 CGCCGCCCTTCATACTGCACCGGGGGGAAGGATCGACAGATTGATCCAGCGATACAGCG
    GCGCGGAAGTATGACGTGGCCCGCCCTTCCTAGCTGTCTAAACTAGGTCGCTATGTGCG
    < G G E Y Q V P R S P D V S K I W R Y L A
4261 CGTCGTGATTAGCGCGGTGGCTGATTCATTCCCCAGCGACCATGATCACACTCGGGT
    GCAGCACTAATCGCGGCACCGGACTAAGTAAGGGTCGCTGCTACTAGTGTGAGCCCA
    < D H N A G H G S E N G L S W I I V S P H
4321 GATTACGATCGCGCTGCACCATTCGCGTTACGCGTTCGCTCATCGCCGGTAGCCAGCGCG
    CTAATGCTAGCGCGACGTGTTAGCGCAATGCGCAAGCGAGTAGCGGCCCATCGGTCGCGC
    < N R D R Q V M R T V R E S M A P L W R P
4381 GATCATCGGTCAGACGATTTCATTGGCACCATGCCGTGGGTTTCAATATTGGCTTCATCCA
    CTAGTAGCCAGTCTGCTAAGTAACCGTGTACGGCACCCAAAGTTATAACCGAAGTAGGT
    < D D T L R N M P V M G H T E I N A E D V
4441 CCACATACAGGCGGTAGCGGTGCGACACGCGTGACACAGCGGATGGTTCGGATAATGCG
    GGTGATGTCCGGCATCGCCAGCGGTGTCGCACATGGTGTGCGCTACCAAGCCTATTACGC
    < V Y L G Y R D C L T Y W L P H N P Y H S
4501 AACAGCGCACGGCGTTAAAGTTGTTCTGCTTCATCAGCAGGATATCCTGCACCATCGTCT
    TTGTCGCGGTGCGCGCAATTTCAACAAGACGAAGTAGTCGTCCTATAGGACGTGGTAGCAGA
    < C R V A N F N N Q K M L L I D Q V M T Q
```

Figure 3 continued

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4561 GCTCATCCATGACCTGACCATGCAGAGGATGATGCTCGTGACGGTTAACGCCCTCGAATCA
 CGAGTAGGTAAGTGGTACGTTCTCCTACTACGAGCACTGCCAATTGCCGAGCTTAGT
 < E D M V Q G H L P H H E H R N V G R I L

 4621 GCAACGGCTTGCCGTTTCAGCAGCAGACCAATTTCAATCCGCACCTCGCGGAAACCGA
 CGTTGCCGAACGGCAAGTCGTCGTCGTCTGTAAAGTTAGGCGTGAGCGCCCTTTGGCT
 < L P K G N L L L L L G N E I R V E R F G V

 4681 CATCGCAGGCTTCTGCTTCAATCAGCGTGCCGTGCGGGTGTGAGTTCAACCAACCGCAC
 GTAGCGTCCGAAGACGAAGTTAGTCGCACGGCAGCCGCCACACGTCAGTTCAGTTGGTGGCGTG
 < D C A E A E I L T G D A T H L E V V A R

 4741 GATAGAGATTCGGGATTCGGCGCTCCACAGTTTCGGGTTTCGACGTTTCAGACGTAGTG
 CTATCTCTAAGCCCTAAAGCCGCGAGGTGTCAAAGCCCAAAGCTGCAAGTCTGCATCAC
 < Y L N P I E A S W L K P N E V N L R L T

 4801 TGACGCGATCGGCATAACCAACCGCTCATCGATAATTTCAACCCCGAAAGCGCGGTGC
 ACTGCGCTAGCCGTATTGGTGGTCCGAGTAGCTATTAAAGTGGCGGCTTCCGCGCCACG
 < V R D A Y G G R E D I I E G G F P A T G

 4861 CGCTGGCGACCTGCGTTTCACCCCTGCCATAAAGAAACTGTACCCGTAAGTAGTCACGCA
 GCGACCGCTGGACGCAAGTGGGACGGTATTTCTTTGACAATGGGCATCCATCAGTGGGT
 < S A V Q T E G Q W L S V T V R L Y D R L

 4921 ACTCGCCGCACATCTGAACCTTCAGCCTCCAGTACAGCGGGGTGAAATCATCATTAAAGC
 TGAGCGCGGTGTAGACTTGAAGTCGGAGGTCAATGTCCGCGCCGACTTTAGTAGTAATTTCG
 < E G C M Q V E A E L V A R S F D D N F R

 4981 GAGTGGCAACATGGAAATCGCTGATTGTGTAGTCGGTTTATGCAGCAACGAGACGTCAC

Figure 3 continued

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CTCACCGTTGTACCTTTAGCGACTAAACACATCAGCCAAATACGTCGTTGCTCTGCAGTG
< T A V H F D S I Q T T P K H L L S V D R

5041 GGAAATGCCGCTCATCCGCCACATATCCTGATCTTCCAGATAACTGCCGTCACCTCCAAC
CCTTTACGGCGAGTAGCGGTGTATAGGACTAGAAGTCTATTGACGGCAGTGAGGTG
< F I G S M R W M D Q D E L Y S G D S W R

5101 GCAGCACCATCACCGCGAGGCGGTTTCTCCGGCGGTAAATGCGCTCAGGTCAAATT
CGTCGTGGTAGTGGCGCTCCGCCAAAGAGGCCGCGCATTTTACGGAGTCCAGTTTAA
< L V M V A L R N E G A R L F A S L D F E

5161 CAGACGGCAACGACTGTCTGGCCGTAACCGACCCAGCGCCCGTTGCACCCACAGATGAA
GTCTGCCGTTTGTGACAGGACCGGCATTGGCTGGTTCGCGGCAACGTGGTGTCTACTT
< S P L R S D Q G Y G V W R G N C W L H F

5221 ACGCGAGTTAACGCCATCAAAAATAATTGCGCTGCGCTTCTCCTGTAGCCAGCTTTCAT
TGCGGCTCAATTGCGGTAGTTTATTAAAGCGCAGACCCGGAAGGACATCGGTGCGAAAGTA
< A S N V G D F I I R T Q G E Q L W S E D

5281 CAACATTAAATGTGAGCGAGTAACAACCCGTCGGATTCTCCGTGGAAACAACGGCGGAT
GTTGTAATTTACACTCGCTCATTTGTTGGCAGCCTAAGAGGCACCCCTTGTTGCCGCCCTA
< V N F T L S Y C G T P N E T P V F P P N

5341 TGACCGTAATGGGATAGGTTACGTTGGTGTAGATGGGCGCATCGTAACCGTGCACTGCCC
ACTGGCATTACCCCTATCCCAATGCAACCACATCTACCCGCGTAGCATTTGCCACGTAGACGG
< V T I P Y T V N T Y I P A D Y G H M Q W

5401 AGTTTGAGGGGACGACGACAGTATCGGCCTCAGGAAGATCGCACTCCAGCCAGCTTCCG
TCAAACTCCCTGCTGCTGTCATAGCCGGAGTCCTTCTAGCGTGAGGTGCGGTCGAAAGGC

Figure 3 continued

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< N S P V V V T D A E P L D C E L W S E P
5461 GCACCGCTTCTGGTCCCGAAACAGGCAAGCGCCATTGCCATTTCAGGCTGCGCAACT
    CGTGGCGAAGACACCGCCTTTGGTCCGTTTCGGGTAAGCGTAAGTCCGACGCGTTGA
< V A E P A P F W A F R W E G N L S R L Q
5521 GTTGGGAAGGGCGATCGGTGCGGGCCCTCTTCGCTATTACGCCAGCTGGCGAAAGGGGAT
    CAACCCCTTCCCGCTAGCCACGCCCGGAGAGCGATAATCGGTCGACCGCTTCCCCCTA
< Q S P R D T R A E E S N R W S A F P P H
5581 GTGCTGCAAGGGGATTAAAGTTGGGTAAACGCCAGGGTTTCCAGTCACGACGTTGTAAA
    CACGACGTTCCGCTAATTCAACCCATTGCGGTCCCCAAAAGGTCAGTGTGCAACATTTT
< A A L R N L Q T V G P N E W D R R Q L V
5641 CGACGGGATCTAGCATggatctagccATTAGTATCCCTAAATTTGAATTGTAATTATCGA
    GCTGCCCTAGATCGTAcctagatcggTAAATCATAGGATTTAACTTAACATTAATAGCT
< V P D L M
    ←Start of beta-Galactosidase protein coding sequence
    ← Fowlpox virus bidirectional promoter (in bold)→
5701 TAATAAATGgacggatcgATGAAATATACAAAGTTATATCTTGGCTTTTCAGCTCTGCATC
    ATTATTTACctgcctagctACTTTATATAGTTCAATATAGAACCGAAAGTCGAGACGTAG
    > M K Y T S Y I L A F Q L C I
    Human interferon gamma protein coding sequence→
5761 GTTTGGGTTCTTGGCTGTACTGCCAGGACCCCATATGTAAAGAGCAGAAACCTT
    CAAAACCCAGAGAACCGACAATGACGGTCTCGGTATACATTTTCTTCGTCTTTTGAA
    > V L G S L G C Y C Q D P Y V K E A E N L

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Figure 3 continued

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5821 AAGAAATATTTTAATGCAGGTCATTGAGATGTAGGGATAATGGAACCTCTTTCTTAGGC
      TTCTTTATAAAATTACGTCCAGTAAGTCTACATCGCCTATTACCTTGAGAAAAGAATCCG
      > K K Y F N A G H S D V A D N G T L F L G

5881 ATTTTGAAGAATTGGAAAGAGGAGAGTGACAGAAAAATAATGCAGAGCCAAATTGTCTCC
      TAAAACTTCTTAACCTTTCTCCTCTCACTGTCTTTTATFACGTCTCGGTTAACAGAGG
      > I L K N W K E E S D R K I M Q S Q I V S

5941 TTTTACTTCAAACCTTTTAAAAAATTTAAAGATGACCAGAGCATCCAAAAGAGTGTGGAG
      AAAATGAAGTTTGAAAAATTTTGAAATTTCTACTGGTCTCGTAGGTTTCTCACACCTC
      > F Y F K L F K N F K D D Q S I Q K S V E

6001 ACCATCAAGGAAGACATGAATGTCAAGTTTTCAATAGCAACAAAAAGAACGAGATGAC
      TGGTAGTTCCTTCTGTACTTACAGTTCAAAAAGTTATCGTTGTTTTCTTGTCTCTACTG
      > T I K E D M N V K F F N S N K K R D D

6061 TTCGAAAAGCTGACTAATTATTCGGTAACTGACTTGAATGTCCAACGCAAGCAATACAT
      AAGCTTTTCGACTGATTAATAAGCCATTGACTGAACCTTACAGGTTGCGTTTCGTTATGTA
      > F E K L T N Y S V T D L N V Q R K A I H

6121 GAACTCATCCAAGTGATGGCTGAACTGTGCCAGCAGCTAAACAGGGAAGCGAAAAAGG
      CTTGAGTAGGTTCACTACCGACTTGACAGCGGTCGTCGATTTTGTCCCTTCGCTTTTCC
      > E L I Q V M A E L S P A A K T G K R K R

6181 AGTCAGATGCTGTTTCGAGGTCGAAAGAGCATCCCAGTAATgggtgtcctgcctgcaatat
      TCAGTCTACGACAAAGCTCCAGCTTCTCGTAGGGTCATTaccacaggacgacgttata
      > S Q M L F R G R A S Q .

6241 ttgaatttttaaatctaatctatttattaataattttaacattatttatatggggaatatat

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Figure 3 continued

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aacttaaaatttagatttagataaaataaattataaaattgtaataaataatacccccttatata

6301 ttttagactcatcaatcaataaagtagtatttataataagcaactTTTTGTaatggatccc
 aaaatctgagtagttagttattcataaataattatcgttgAAAAACAttacctaggg
Engineered transcriptional stop motif (in upper case)

6359 agctctctcgacgcaggactcggcttgctgaagcgcgcacagcaagagcgagggcggc
 tcgagagagctgcgtcctgagcgaacgacttcgcgcgtgctcctccgctccccgcgcg

6419 gactggtgagtacgccaatttttactagcggaggtagaagagagagagATGGGTGCG
 ctgaccactcatgcggttaaaaaactgatcgccctccgatcttcctctctcTACCCACGC
 > M G A

HIV gag protein coding sequence →

6479 AGAGCGTCGGTATTAAGCGGGGGAGAATTAGATAAATGGGAAAAAATTCGGTTAAGGCCA
 TCTCGCAGCCATAATTGCGCCCCCTCTTAATCTATTACCCCTTTTAAAGCCAATTCCGGT
 > R A S V L S G G E L D K W E K I R L R P

6539 GGGGAAAGAAAAAATATAAGTTAAACATATAGTATGGCAAGCAGGAGCTAGAACGA
 CCCCCTTTCTTTTATATTCAATTTTGATATATCATACCCCGTTCGTCCCTCGATCTTGCT
 > G G K K Y K L K H I V W A S R E L E R

6599 TTCCGAGTCAATCCTGGCCTGTTAGAAACATCAGAAGGCTGCAGACAAATATTGGGACAG
 AAGCGTCAGTTAGGACCGGACAATCTTTGTAGTCTTCCGACGCTGTGTTATAACCCCTGTC
 > F A V N P G L L E T S E G C R Q I L G Q

6659 CTACAGCCATCCCTTCAGACAGGATCAGAAGAACTTAGATCATTATATAATACAGTAGCA
 GATGTCGGTAGGGAAGTCTGTCTCTTAGTCTTCTTGAATCTAGTAATATATTATGTCATCGT
 > L Q P S L Q T G S E E L R S L Y N T V A

Figure 3 continued

18/28

6719 ACCCTCTATTGTGTACATCAAAGGATAGATGTAAAGACACCAAGGAAGCTTTAGAGAAG
TGGAGATAACACATGTAGTTTCCATCTACATTTTCTGTGGTTCCTTCGAAATCTCTTC
> T L Y C V H Q R I D V K D T K E A L E K

6779 ATAGAGGAAGAGCAAAAAGTAAGAAAAGGCACAGCAAGCAGCAGCTGCAGCTGGC
TATCTCCTTCTCGTTTGTGTTTCATTCTTTTCCGTGTCGTTTCGTCGACGTCGACCG
> I E E Q N K S K K A Q A A A A G

6839 ACAGGAAACAGCAGCCAGGTGAGCCAAAATTACCCCTATAGTGCAGAACCTACAGGGCAA
TGTCCTTTGTGTCGGTCCAGTCGGTTTAAATGGGATATCACGTCCTTGGATGTCCCCGTT
> T G N S S Q V S Q N Y P I V Q N L Q G Q

6899 ATGGTACATCAGGCCATATCACCTAGAACTTTAAATGCATGGGTAAAGTAGTAGAAGAA
TACCATGTAGTCCGGTATAGTGGATCTTGAATTTACGTACCCATTTTCATCATCTCTTT
> M V H Q A I S P R T L N A W V K V V E E

6959 AAGGCTTTCAGCCCAGAAAGTAATACCCATGTTTTCAGCATTATCAGAAGGAGCCACCCCA
TTCCGAAAGTCGGTCTTCATTATGGGTACAAAGTCGTAATAGTCTTCCTCGGTGGGT
> K A F S P E V I P M F S A L S E G A T P

7019 CAAGATTTAAACACCATGCTAAACACAGTGGGGGACATCAAGCAGCCATGCCAAATGTTA
GTTCTAAATTTGTGGTACGATTGTGTACCCCCCTGTAGTTCGTGCGTACGTTTACAAT
> Q D L N T M L N T V G G H Q A A M Q M L

7079 AAAGAGACTATCAATGAGGAAGCTGCAGAATGGGATAGAGTGCATCCAGTGCATGCAGGG
TTTCTCTGATAGTTACTCCTTCGACGTCTTACCCCTATCTCACGTAGGTCACGTACGTCCC
> K E T I N E E A A E W D R V H P V H A G

Figure 3 continued

19/28

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7139 CCTATTGCACCGGCCAAATGAGAGAACCAGGGGAAGTGACATAGCAGGAACACTAGT
    GGATAACGTGGTCCGGTTTACTCTCTTGGTTCCCTTCACTGTATCGTCCTTGATGATCA
    > P I A P G Q M R E P R G S D I A G T T S

7199 ACCCTTCAGGAACAAATAGGATGGATGACAAATAATCCACCTATCCCAGTAGGAGAAATC
    TGGGAAGTCCTTGTATTATCCTACCTACTGTATTATTAGGTGGATAGGTCATCCTCTTTAG
    > T L Q E Q I G W M T N N P P I P V G E I

7259 TATAAAAGATGGATAATCCTGGGATTAAATAAATAGTAAGAATGTATAGCCCTACCAGC
    ATATTTTCTACCTATTAGGACCCCTAATTATTATTATCATCTTACATATCGGGATGGTCG
    > Y K R W I I L G L N K I V R M Y S P T S

7319 ATCTGGACATAAGACAAGGACCAAGGAACCCCTTTAGAGATTATGTAGACCGGTTCTAT
    TAAGACCTGTATTCTGTTCCCTGGTTTCCTTGGGAAATCTCTAATACATCTGGCCCAAGATA
    > I L D I R Q G P K E P F R D Y V D R F Y

7379 AAAACTCTAAGAGCCGGAACAAGCTTCACAGGATGTAAAAAATTGGATGACAGAAACCTTG
    TTTTGAGATTCTCGGCTTGTTTCGAAAGTGTCCTACATTTTTTAACCTACTGTCTTTTGGAAC
    > K T L R A E Q A S Q D V K N W M T E T L

7439 TTGGTCCAAAATGCAAAACCCAGATTGTAAGACTATTTTAAAAGCATTTGGACCCAGCAGCT
    AACCAGGTTTACGTTTGGGTCTAACATTCTGATAAAATTTTCGTAACCCCTGGTCGTCGA
    > L V Q N A N P D C K T I L K A L G P A A

7499 AACTAGAGAAATGATGACAGCATGTGAGGAGTGGGGGACCCGGCCATAAAGCAAGA
    TGTGATCTTCTTTACTACTGTGACAGTCCCTCACCCCCCTGGGCCGGTATTTCGTTCT
    > T L E E M M T A C Q G V G G P G H K A R

7559 GTTTTGGCTGAAGCCCATGAGCCAAGTAACAAATCCAGCTAACATAATGATGCAGAGAGGC
```

Figure 3 continued

20/28

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CAAAACCGACTTCGGTACTCGGTTTCATTGTTTAGGTCGATTGTATTACTACGTCCTCTCCG
> V L A E A M S Q V T N P A N I M M Q R G

7619 AATTTTAGGAACCAAGAAAGACTGTTAAGTGTTCATTTGTGGCAAAAGGACACATA
TTAAATCCTTGGTTCTTTCTGACAAATTCACAAAAGTTAACACCGTTTCTTCCCGTGTAT
> N F R N Q R K T V K C C F N C G K E G H I

7679 GCCAAAAATTGCAGGGCCCTAGGAAAAGGGCTGTTGGAGATGTGGAAGGGAAGGACAC
CGGTTTTTAACGTCCCGGGGATCCTTTTCCCGACAACTCTACACCTTCCCTTCCCTGTG
> A K N C R A P R K K G C W R C G R E G H

7739 CAAATGAAAGATTGCACTGAGAGACAGGCTAATTTTATAGGAAGATCTGGCCTTCCTAC
GTTTACTTTCTAACGTGACTCTCTGTCCGATTAAATAATCCCTTCTAGACCGGAAGGATG
> Q M K D C T E R Q A N F L G K I W P S Y
> F F R E D L A F L
HIV pol protein coding sequence →

7799 AAGGAAGGCCAGGGAATTTTCTTCAGAGCAGACCAGAGCCCAACAGCCCCCACCAGAAGAG
TTCCCTTCCGGTCCCTTAAAGAAAGTCTCGTCTGGTCTCGGTTGTCGGGGTGGTCTTCTC
> K G R P G N F L Q S R P E P T A P P E E
> Q G K A R E F S S E Q T R A N S P T R R

7859 AGCTTCAGGTTTGGGAGGAGAAAACAACCTCCCTCTCAGAAGCAGGAGCCGATAGACAAG
TCGAAGTCCAAACCCCTCCTCTTTTGTGAGGGAGAGTCTTCGTCTCGGCTATCTGTTC
> S F R F G E E K T T P S Q K Q E P I D K
> E L Q V W G G E N N S L S E A G A D R Q

7919 GAACTGTATCCTTTAACTTCCCTCAGATCACTCTTTGGCAACGACCCCTCGTCACAATAA
CTTGACATAGGAAATTGAAGGGAGTCTAGTGAGAAACCGTTGCTGGGAGCAGTGTATT
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Figure 3 continued

21/28

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>E L Y P L T S L R S L F G N D P S S Q .
>G T V S F N F P Q I T L W Q R P L V T I

7979 GGATAGGGGGCAACTAAAGGAAGCTCTATTAGATACAGGAGCAGATGATACAGTATTAG
    CCTATCCCCCGTTGATTTCCTTCGAGATAATCTATGTCTCGTCTACTATGTCAATAATC
    >R I G G Q L K E A L L D T G A D D T V L

8039 AAGAAATGAATTTGCCAGGAAATGGAAACCAAAATGATAGGGGAATTGGAGGTTTTTA
    TTCTTTACTTAAACGGTCCTTTTACCTTTGGTTTACTATATCCCTTAACCTCCAAAAT
    >E M N L P G K W K P K M I G G I G G F

8099 TCAAAGTAAGACAGTACGATCAGATACCTGTAGAAATCTGTGACATAAAGCTATAGGTA
    AGTTTCATTCTGTGCTAGTCTATGGACATCTTTAGACACCTGTATTTTCGATATCCAT
    >I K V R Q Y D Q I P V E I C G H K A I G

8159 CAGTATTAGTAGGACCTACACCTGTCAACATAATTGGAAGAAATCTGTTGACTCAGATTG
    GTCATAATCATCCTGGATGTGGACAGTTGTATTAACTTCTTTAGACAACCTGAGTCTAAC
    >T V L V G P T P V N I I G R N L L T Q I

8219 GTTGACTTTAAATTTCCCCCATTAGTCCTATTGAAACTGTACCAGTAAATTAAGCCAG
    CAACATGAAATTTAAAGGGGTAATCAGGATAAAGTTTGACATGGTCAATTTAAATTCGGTC
    >G C T L N F P I S P I E T V P V K L K P

8279 GAATGGATGCCCCAAAAGTTAAGCAATGGCCATTGACAGAAGAAAAATAAAGCATTAG
    CTTACCTACCGGGTTTCAATTTCGTTACCGGTAAGTCTCTCTTTTATTTTCGTAATC
    >G M D G P K V K Q W P L T E E K I K A L

8339 TAGAGATATGTACAGAAATGGAAAAGGAAGGAAAATTTCAAAAATTTGGGCCCTGAAAATC
    ATCTCTATACATGTCTTTACCTTTTCCTTCCCTTTTAAAGTTTTTAAACCCCGACTTTTAG
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Figure 3 continued

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22/28

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>V E I C T E M E K E G K I S K I G P E N
8399 CATACAATACTCCAGTATTGCTATATAAGAAAAAGACAGTACTAAATGGAGAAAACTAG
      GTATGTTATGAGGTCATAAACGATAATTTCTTTTCTGTGTCATGATTACCTCTTTTGATC
>P Y N T P V F A I K K D S T K W R K L
8459 TAGATTTTCAGAGAACTTAATAAAGAACTCAAGACTTCTGGAAAGTTCAGTTAGGAATAC
      ATCTAAAGTCTCTTGAATTATTTTCTTGAGTTCTGAAGACCCCTTCAAGTCAATCCTTATG
>V D F R E L N K R T Q D F W E V Q L G I
8519 CACACCCCGCAGGGTTAAAAAGAAAAAATCAGTAACAGTATTGGATGTGGGTGATGCAT
      GTGTGGGGCGTCCCAATTTTCTTTTCTTTTAGTCATTGTGCATAACCTACACCCACTACGTA
>P H P A G L K K K S V T V L D V G D A
8579 ACTTTTCAGTTCCTTAGATAAAGACTTTAGAAAAGTATACTGCATTTACCATACCTAGTA
      TGAAAAGTCAAGGGAATCTATTTCTGAAATCTTTTCATATGACGTAATGGTATGGATCAT
>Y F S V P L D K D F R K Y T A F T I P S
8639 TAAACAATGAGACACCAGGGATTAGATATCAGTACAATGTGTGCCACAGGGATGGAAAG
      ATTTGTTACTCTGTGGTCCCTAATCTATAGTCATGTTACACGACGGGTGCCCTACCTTTC
>I N N E T P G I R Y Q Y N V L P Q G W K
8699 GATCACCAGCAATATTCCAAAGTAGCATGACAAAAATCTTAGAGCCTTTTAGAAAAACAGA
      CTAGTGGTCGTTATAAGGTTTCATCGTACTGTTTTAGAATCTCGGAAAAATCTTTTGCTCT
>G S P A I F Q S S M T K I L E P F R K Q
8759 ATCCAGACATAGTTATCTATCAATACATGGATGATTGTATGTAGGATCTGACTTAGAAA
      TAGGCTGTATCAATAGATAGTTATGTACCTACTAAACATACATCCTAGACTGAATCTTT
>N P D I V I Y Q Y M D D L Y V G S D L E
```

Figure 3 continued

23/28

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8819 TAGGCAGCATAGAACAAAAATAGAGGAACTGAGACAGCATCTGTTGAGGTGGGATTTA
    ATCCCGTCGTATCTTGTGTTTTTATCTCCTTGACTCTGTCGTAGACAACTCCACCCCTAAAT
    >I G Q H R T K I E E L R Q H L L R W G F

8879 CCACACCAGACAAAAACATCAGAAAGAACCTCCATTCTTGGATGGGTTATGAACCTCC
    GGTGTGGTCTGTTTTTTGTAGTCTTTCTTGAGGTAAGGAAACCTACCCAAATACTTGAGG
    >T T P D K K H Q K E P P F L W M G Y E L

8939 ATCCTGATAAATGGACAGTACAGCCTATAATGCTGCCAGAAAAAGACAGCTGGACTGTCA
    TAGGACTATTTACCTGTCATGTCGGATATTACGACGGTCTTTTCTGTGCGACCTGACAGT
    >H P D K W T V Q P I M L P E K D S W T V

8999 ATGACATACAGAAGTTAGTGGGAAAATTGAATTGGGCAAGTCAGATTTATGCAGGGATTA
    TACTGTATGTCTTCAATCACCCTTTTAACTTAACCCGTTCAAGTCTAAATACGTCCCTAAT
    >N D I Q K L V G K L N W A S Q I Y A G I

9059 AAGTAAAGCAGTTATGTAACTCCTTAGAGGAACCAAGCACTAACAGAAGTAATACCAC
    TTCATTTTCGTCAATACATTTGAGGAATCTCCTTGGTTTCGTGATTGTCTTCATTATGGTG
    >K V K Q L C K L L R G T K A L T E V I P

9119 TAACAGAAGAAGCAGAGCTAGAACTGGCAGAAAAACAGGAGATTCTAAAAGAACCAGTAC
    ATTGTCTTCTTCGTCTCGATCTTGACCGTCTTTGTCCCTCTAAGATTTTCTTGGTCATG
    >L T E E A E L E L A E N R E I L K E P V

9179 ATGAAGTATATTATGACCCCATCAAAAGACTTAGTAGCAGAAATACAGAAGCAGGGCAAG
    TACTTCATATAATACTGGGTAGTTTCTGAATCATCGTCTTATGTCTTCGTCGCCGTTTC
    >H E V Y Y D P S K D L V A E I Q K Q G Q
```

Figure 3 continued

24/28

9239 GCCAATGGACATATCAAATTTATCAAGAGCCATTTAAAAATCTGAAAAACAGGAAAGTATG
CGGTTACCTGTATAGTTTAAATAGTTCTCGGTAAATTTTAGACTTTTGTCCCTTTCATAC
>G Q W T Y Q I Y Q E P F K N L K T G K Y

9299 CAAGGATGAGGGTGCCACACTAATGATGTAAACAGTTAACAGAGGCAGTGCAAAAAG
GTTCTACTCCCCACGGGTGTGATTAATACTATTTGTCAATTTGTCTCCGTCACGTTTTTC
>A R M R G A H T N D V K Q L T E A V Q K

9359 TATCCACAGAAAGCATAGTAATATGGGAAAGATTCTCTAAATTTAAACTACCCATACAAA
ATAGGTGCTCTTCGTATCATTTATACCCCTTTCTAAGGATTTAAATTTGATGGGTATGTTT
>V S T E S I V I W G K I P K F K L P I Q

9419 AGGAAACATGGGAAGCATGGTGGATGGAGTATTGGCAAGCTACCTGGATTCTCTGAGTGGG
TCCTTTGTACCCCTTCGTACCACTACCTCATACCCGTTTCGATGGACCTAAGGACTCACCC
>K E T W E A W M E Y W Q A T W I P E W

9479 AGTTTGTCATACCCCTCCCTTAGTGAATATGTTACCAAGTTAGAGAAAGAACCCATAG
TCAAACAGTTATGGGAGGGAATCACTTTAATACCATGGTCAATCTCTTTCTTGGGTATC
>E F V N T P P L V K L W Y Q L E K E P I

9539 TAGGAGCAGAAACTTTCTATGTAGATGGGCAGCTAATAGGGAGACTAAATAGGAAAAG
ATCCTCGTCTTTGAAAGATACATCTACCCCGTCGATTATCCCTCTGATTTAATCCTTTTC
>V G A E T F Y V D G A A N R E T K L G K

9599 CAGGATATGTTACTGACAGAGGAAGACAAAAAGTTGTCTCCATAGCTGACACAAATC
GTCCCTATACAATGACTGTCTCCTTCTGTTTTTCAACAGAGGTATCGACTGTGTGTTTAG
>A G Y V T D R G R Q K V V S I A D T T N

9659 AGAAGACTGAATTACAAGCAATTCTATCTAGCTTTGCAGGATTCTGGGATTAGAGTAAACA

Figure 3 continued

25/28

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TCTTCTGACTTAATGTTTCGTTAAGTAGATCGAAACGTCCTAAGCCCTAATCTTCATTGTG
>Q K T E L Q A I H L A L Q D S G L E V N

9719 TAGTAACAGACTCACAATAATGCAATAGGAATCATCAAGCACAAACCAGATAAGAGTGAAT
ATCATTGTCTGAGTGTATACGTAATCCTTAGTAAGTTCGTGTTGGTCTATTCTCACTTA
>I V T D S Q Y A L G I I Q A Q P D K S E

9779 CAGAGTTAGTCAGTCAAATAATAGAGCAGTTAATAAAAAAGGAAAGGTCTACCTGGCAT
GTCTCAATCAGTCAGTTTATTATCTCGTCAATTATTTTTCCTTTTCCAGATGGACCGTA
>S E L V S Q I I E Q L I K E K V Y L A

9839 GGTACCAGCACAAAGGAATTGGAGGAAATGAACAAGTAGATAAATTAGTCAGTGCTG
CCCATGGTCGTGTTTCCTTAACCTCCTTACTTGTTCATCTATTATCAGTCACGAC
>W V P A H K G I G G N E Q V D K L V S A

9899 GAATCAGGAAAGTACTATTTTGAATGGAATAGATAAGGCCCAAGAACAATGAGAAAT
CTTAGTCCTTTCATGATAAAAACTTACCTTATCTATTCCGGGTTCTTCTGTACTCTTTA
>G I R K V L F L N G I D K A Q E E H E K

9959 ATCACAGTAATTGGAGAGCAATGGCTAGTGATTTTAACCTGCCACCTGTAGTAGCAAAAG
TAGTGTCATTAAACCTCTCGTTACCGATCACTAAATTTGGACGGTGGACATCATCGTTTTC
>Y H S N W R A M A S D F N L P P V V A K

10019 AAATAGTAGCCAGCTGTGATAAATGTCAGCTAAAAGGAGAAGCCATGCATGGACAAGTAG
TTTATCATCGGTCGACACTATTACAGTCGATTTTCCTCTTCGGTACGTACCTGTTTCATC
>E I V A S C D K C Q L K G E A M H G Q V

10079 ACTGTAGTCCAGGAATATGGCAACTAGATTGTACACATCTAGAAGGAAAAATTATCCTGG
TGACATCAGGTCCTTATACCGTTGATCTAACATGTGTAGATCTTCCTTTTAAATAGGACC
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Figure 3 continued

26/28

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>D C S P G I W Q L D C T H L E G K I I L
10139 TAGCAGTTTCATGTAGCCAGTGGATATAGAACGAGAAGTTATTCAGCAGAGACAGGGC
      ATCGTCAAGTACATCGGTACCTATATATCTTCGTCTTCAATAAGTCGTCTCTGTCCCG
>V A V H V A S G Y I E A E V I P A E T G
10199 AGGAAACAGCATATTTTCTTAAATTAGCAGGAAGATGGCCAGTAAACAAATACATA
      TCCTTTGTCGTATAAAAGAGAATTTTAATCGTCCTTCTACCGGTCATTTTGTATGTAT
>Q E T A Y F L L K L A G R W P V K T I H
10259 CAGACAATGGCAGCAATTTTACCAGTACTACGGTTAAGCCGCCCTGTTGGTGGCAGGGA
      GTCTGTTACCGTCGTTAAAGTGGTCATGATGCCAATTCGGCGGACACCCCGTCCCT
>T D N G S N F T S T T V K A A C W A G
10319 TCAAGCAGGAATTTGGCATTCCCTACAATCCCAAGTCAAGGAGTAGAATCTATGA
      AGTTCGTCCTTAAACCGTAAGGATGTTAGGGTTTCAGTTCCTCATCATCTTAGATACT
>I K Q E F G I P Y N P Q S Q G V V E S M
10379 ATAATGAATTAAAGAAAATTATAGGACAGGTAAGAGATCAGGCTGAACACCTTAAGACAG
      TATTACTTAATTTCTTTAATATCCTGTCCATTCTCTAGTCCGACTTGTGGAATTCGTGTC
>N N E L K K I I G Q V R D Q A E H L K T
10439 CAGTACAAATGGCAGTATTCATCCACAATTTTAAAGAAAGGGGGATTGGGGATACA
      GTCATGTTTACCGTCATAAGTAGGTGTAAATTTCTTTTCCCCCCTAACCCCTATGT
>A V Q M A V F I H N F K R K G G I G G Y
10499 GTGCAGGGGAAAGAATAGTAGACATAATAGCAACAGACATACAAACTAAAGAACTACAAA
      CACGTCCCCTTTCTTATCATCTGTATTATCGTTGTCTGTATGTTTGTATTTCTTGATGTTT
>S A G E R I V D I I A T D I I Q T K E L Q
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Figure 3 continued

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10559 AGCAAATTACAAAAATTCAAATTTTCGGGTTTATTACAGGGACAACAAGATCCCCTTT
      TCGTTTAATGTTTTTAAGTTTAAAGCCCAATAATATGTCCTGTGTTCTAGGGAAA
      >K Q I T K I Q N F R V Y Y R D N K D P L

10619 GGAAGGACCAGCAAAGCTTCTCTGGAAAGGTGAAGGGCAGTAGTAATACAAGATAATA
      CCTTTCCTGGTCGTTTCGAAGAGACCTTCCACTTCCCGTCATCATATATGTTCTATTAT
      >W K G P A K L L W K G E G A V V I Q D N

10679 GTGACATAAAAGTAGTGCCAAAGAAAGAAAAATCATTAGGGATTATGGAACACAGA
      CACTGTATTTTCATCACGGTCTCTTTTCGTTTITAGTAATCCCTAATACCTTTTGTCT
      >S D I K V V P R R K A K I I R D Y G K Q

10739 TGGCAGGTGATGATTGTGTGGCAAGTAGACAGGATGAGGATTAGaacatggaaaagtta
      ACCGTCCACTACTAAACACACCGTTCATCTGTCTACTCTTAATCttgtaccttttcaaat
      >M A G D D C V A S R Q D E D .

10799 gtaaaacaccatagggtcgactgcagaagcttccatggggagctctttagtgtaataaat
      catttgtggtatcccagctgaagctcttcgaaggtacccctcgagaaatcacattattta

10859 ttaataaaaatttgacaaaaatagttaaatgaatatatgaaagtacattatacacggaATG
      aattattttataaactgttttatcaatttacttataatactttcatgtaatatgtgcctTAC

10919 GAGTTCGATATTAGTTCTTCGAGAATGATATATTCTGTCTCGAACAAATATCACTTTGTT
      CTCAAGCTATAATCAAGAACGTCTTACTATATAAGACAAGAGCTTGTATAGTGAACAA

10979 ACTGATAATCGTTATAACAACCATAAATCAAAAAATTTAGAATTATATTACTGTTTAAA
      .TGACTATTAGCAATATTGTTGGTATTAGTTTAAATCTTAATAATAATATGACAAATTTT
    Fowlpox virus 3' flanking region of insertion site (in upper case) →
    
```

Figure 3 continued

28/28

11039 GATTCTACGATAAAGAAAATATCCGTACAGGTTTGTTTCTGAAATTCACCTTTGTAAGATAC
CTAAGATGCTATTCTTTATAGGCATGTCCAAACAAGACTTTAAGTGAAACATTCTATG

11099 ATAATTAAACAAATTCAGGGGAAAAAATCTTTACAAAATTAGTATAGAAGCTATAGATATA
TATTAATTGTTTAAGTCCCCCTTTTAGAAATGTTTAAATCATATCTTCGATATCTATAT

11159 TCAAAAGGTAGACAACAATAATCAGAACCTAATTTTTTATCAAAAAATTAAAAATATAA
AGTTTCCATCTGTGTGTTTATTAGTCTTGGATTAAAAAAATAGTTTTTTTAATTTATATT

11219 ATAAATGAAAAATAACTTGATGAAGAAAAAATCAACATGAGTAAGAAACAAGTAAAAA
TATTTTACTTTTTTATTGAACATACTTCTTTTTTACTTGACTCATTCCTTGTTCATTTT

11279 CTCAAAGTAAATGTAATAATAACGCATCTAGATTTACATGCCTGGATGCGGTGCA
GAGTTTCATTTACATTATTATTGCGTAGATCTAAATGFACGGACCTACGCCACCGT

Figure 3 continued